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Every semester, the Lambda Phi Chapter of the *Beta Beta Beta* biological honor society at Lake Forest College organizes a seminar series to achieve its purpose of stimulating interest and admiring scholarly achievements in biological sciences. This year, Tri-Beta approached the Lake Forest community through seminars, career panels, and the first annual life sciences research symposium.

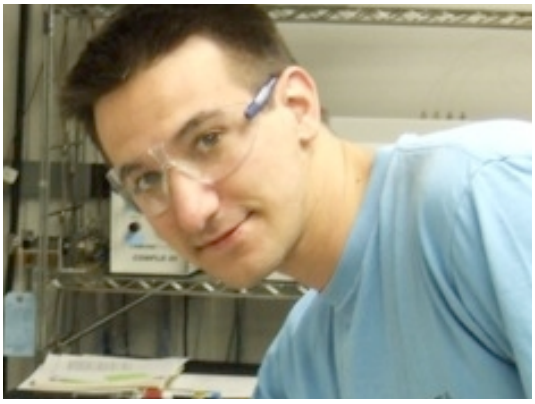
PREPARING FOR DIVERSE BIOLOGY CAREERS: Alumni Choices, Alumni Voices

Students gather to hear alumni speak of their career choices and experiences.

Many undergraduates majoring in life sciences gathered in Meyer Auditorium to listen to alumni perspectives and their career choices. Lake Forest Alumni Isaac Holmes ’05, Arun Paul ’06, Alex Gordin ’08, Alina Spivak ’08, Krista Kusinski ’08, and Grace Dunford ’09 visited Lake Forest College to inform undergraduates about the career paths that can be taken after completing a college education in the sciences. Both Spivak and Holmes mentioned that as undergraduates they were mostly determined to pursue medicine after college. While Holmes suggested shadowing a doctor to help students decide whether to go to medical school, he also recommended talking to physicians not only about their careers but also about their social lives. He also emphasized the importance of considering the many hours of hard work required as a doctor before going into medicine. Kusinski is someone who needed a little bit more free time than a doctor but still wanted to work in the health field. Therefore, she chose nursing. Currently, she is completing her masters’ degree in nursing to become a nurse practitioner. Paul was once undecided about whether to go to medical school or to graduate school because he loved both fields. Today, he is a MD/PhD student at Rosalind Franklin University. Dunford has taken a year off after graduating from Lake Forest College last spring and is planning to go into the field of physical therapy. Gordin is showing his interest in work done behind the scenes and is currently pursuing a graduate degree in pharmacology at Midwestern University.

This group of alumni represented a diverse group that has pursued a variety of paths after college. Their voices have shown how passionate they are about their careers. All of them suggested that making use of campus resources such as the Career Advancement Center and the Future Health Professionals Advisory Committee will help students become competitive applicants.

LABILE CARBON IN FOREST ECOSYSTEMS: Production, Allocation and Drivers



Charles Flower ‘04

Have you ever wondered how plants shed their leaves in autumn and yet manage to awaken and sprout light green leaves at the beginning of the spring?

Lake Forest College alumnus, Charles Flower '04, addressed Lake Forest College undergraduates about appreciating this process by explaining his research based on the understanding of labile carbon (C) production in deciduous forests. Labile carbon is an important intermediary between C assimilation and growth in deciduous forests. During his lecture, he explained his study of two years, which was focused on a mixed deciduous forest in Michigan, USA. Labile carbon accumulates when photosynthetic carbon supply exceeds the required amount and is later depleted when it is used up for growth of trees during winter. His study used combined meteorological and biometric carbon cycling data of Aspen and Red Oak trees to estimate the labile carbon production and reallocation to structural Net Primary Production (NPP).

The most interesting fact is that his analyses showed that more than 50% of the annual net canopy carbon assimilation was first allocated to labile carbon production rather than to immediate structural NPP. Labile carbon produced during the second half of the summer supported growth and respiration during the winter, in which 35% of the NPP required stored labile carbons. He believes that a broader understanding of labile carbon production and reallocation at the ecosystem scale in the future is important in interpreting lagged canopy C cycling and structural growth processes.

USING MUSEUM RECORDS TO TRACK RECENT BIOTIC CHANGE: An 80-year resurvey of small mammals in the Ruby Mountains, Nevada

Dr. Eric Rickart

While global warming and its effects is a subject widely talked about throughout the world, the Lake Forest College community had the prospect of its effects supported by scientific data this fall. The seminar given by Dr. Eric Rickart
was the penultimate event of the fall semester seminar series hosted by Tri-Beta.

Dr. Rickart brought his years of experience in the research field along with him to Lake Forest College as explained how museum records were used in his study to understand the recent biotic changes. Using museum reports, photographs, and field notes, Dr. Rickart and his research team reconstructed the ecological conditions of the Ruby Mountains from 80 years ago and compared them with current relevant data. Their study was mainly focused on understanding how recent climate changes impacted community composition and distribution of small mammals in the Ruby Mountains region. According to Dr. Rickart, the temperature has increased 1.57°C in this area over the past century. Therefore, the research team hypothesized that the species that are adapted to arid conditions (xeric species) would increase their occurrence along a larger area, and the mesic species would be disadvantaged.

Results showed that there is a significant difference in relative abundance and occurrence in plant species. While lower elevation sites show maximum faunal change, higher elevation sites show minimal faunal change. Even though their results supported their prediction about mesic species, their results for xeric species were contradictory to their initial hypothesis. Both mesic and xeric species showed a lower range of occurrence than in the past. These studies give scientists the capability of predicting the responses of plant and animal species to climate changes in the future and enable them to take necessary steps to conserve the environment.

KENNETH L. WEIK UNDERGRADUATE LIFE SCIENCES RESEARCH SYMPOSIUM: First Annual Showcase of Biology Research Conducted by Lake Forest College Students

The final event of the semester organized by Tri-Beta gave an opportunity to current undergraduates who are involved in research to present their work to the public. The most intriguing aspect of the First Annual Kenneth L. Weik Undergraduate Life Sciences Research Symposium was that it not only valued the scholarly research of undergraduates, but the event also honored Dr. Kenneth L. Weik, Professor of Biology, Emeritus. The symposium is named after him for his priceless service to the Lake Forest College biology department for 34 years.

Professor Emeritus Dr. Kenneth Weik shares a few words.

The diverse collection of scholarly work, ranging from ecology to molecular biology, added color to the Johnson Bridge of the Johnson Science Building that evening. The diversity was not only seen in research areas but also in the academic levels of the presenters that included sophomores, juniors and seniors alike who completed either on campus or off campus research last summer. Daryn Cass ’10 presented her poster titled “Cortical metabolic neuroadaptation after repeated cocaine injection and withdrawal depends on the postnatal age by which drug exposure onset is given.” She explained how her lab was trying to understand the neuro-developmental processes involved in increasing the risk for addiction if exposed during adolescence rather than during the adult age. Daryn conducts her research under the supervision of Dr. Kuei Y. Tseng of Rosalind Franklin University of Medicine & Science. Daniella Brutman ’12 and Paulius Kuprys ’12 are two sophomores who spent their last summer as Richter Scholars working on campus research under the guidance of Dr. Douglas Light. Their study focused on understanding the role of potassium, chloride, and taurine in regulatory volume decrease of rainbow trout red blood cells. Some of the other posters were enriched with research based on Parkinson’s disease, Alzheimer’s disease, guppy sexual selection, telomere length studies, developmental biology studies, and fossil records. These enthusiastic presenters were evidence of the biology department’s success in establishing future scientists who are not only intellectually keen but also excellent public speakers.